WILD Kids

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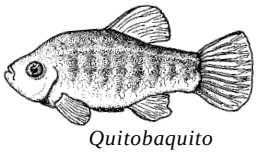
Ciénegas - Unique Habitats of the Southwest

Ciénegas (or *ciénagas*) are small, shallow wetlands found in the southwest. The word **ciénega** comes from the Spanish word *cieno* which means mud. Ciénegas are often fed by springs or by a geologic formation that forces ground water to the surface. Like all wetlands, ciénegas play a very important role in the environment. When runoff from rains and snow melt is high, ciénegas absorb excess water until it gradually drains away. In drier periods ciénegas hold moisture, even after open bodies of water have disappeared. Ciénegas help cleanse the environment by mixing nutrients and oxygen into the water, and by filtering out and neutralizing sewage and toxins. For wildlife, ciénegas provide nutrient-rich food and a resting place. Sometimes ciénegas are referred to as 'nurseries' because many animals breed and raise their young there. The unique aquatic and semiaquatic ciénegas of the southwest were, and still are, a valuable resource for people and wildlife.

Ciénegas and Wildlife

Ciénegas are often described as "oases," surrounded by arid or semi-arid lands. These oases provide food, water and shelter for many different animals. Some ciénegas have developed isolated and unique flora and fauna of their own. In fact, many species of frogs, snails, and fish are found in ciénegas as remnant populations from times when riparian areas were more widespread.



Quitobaquito pupfish

Several small fish are adapted to living in ciénegas, where low levels of dissolved oxygen exist and water temperature may fluctuate rapidly. The **desert pupfish** is only about 3 inches long, but can survive conditions that would kill fish many times its size. It can endure temperatures over 100°F or below 50°F. The pupfish also has a remarkable ability to tolerate high salinity levels in ciénegas, where the water may be two to three times saltier than ocean water. (Scientists are studying pupfish to look for answers to problems related to human kidney function and disease.) A close relative of the desert pupfish, the **Quitobaquito pupfish**, is native only to Quitobaquito Springs, in Organ Pipe Cactus National Monument.

The **Gila topminnow** is also an inhabitant of ciénegas. Only 2-2½ inches long, this fish is usually found at the surface of the water, feeding on insect larvae and vegetation. It is being studied by scientists to determine how it can tolerate intense exposure to sunlight, yet avoid skin cancer. The Gila topminnow and desert pupfish are currently listed as endangered due to loss of ciénega habitat from pumping of groundwater, damming of rivers, and diversion of waterways. Introduction of non-native fish, such as the mosquito fish, are a threat to native fish because they compete with and prey upon topminnows and other native fish.

The **Gila chub,** named for the Gila River Basin for which it was first described, is associated with ciénegas and deep pools where cover is abundant. The Gila chub has been extirpated from a number of ciénegas and streams in Arizona, but with adequate habitat protection and reintroductions into key, historically occupied streams, there is a good chance that this species will not become endangered.

Beavers were once commonly found in Arizona ciénegas. Due to their natural behavior of constructing dams, beavers are instrumental in creating wildlife habitat. The ponds that form behind beaver dams raise the water table, resulting in increased vegetation and aquatic habitat. By the early 1900s, beaver populations had sharply declined due to trapping and loss of riparian habitat. However, in 1999, beavers were reintroduced into the San Pedro River in southeastern Arizona.

Ciénegas and People

People have historically settled in areas where surface water is available; ciénegas were no exception. In fact many Arizona ciénegas are named after the people who settled nearby (Bingham Ciénega, Hooker Ciénega, O'Donnell Ciénega, etc.). For prehistoric cultures, ciénegas were reliable sources of water for crop irrigation. By the mid-1800s, ciénegas were also an important source of water for livestock. Whereas Arizona native herbivores (deer, pronghorn, and bighorn sheep) are adapted to drought conditions, cattle and sheep must have water daily.

Ciénegas, such as San Simon Ciénega located along the Arizona-New Mexico border, were used as watering stops for pioneers, military, and surveying expeditions. Fort Huachuca and other military forts were established near ciénegas and natural springs. But these same bodies of water which were necessary for survival were also a source of mosquitos, and were associated with malaria, encephalitis, yellow fever, and other diseases. As a result, many ciénegas were drained for health reasons. By 1930, few ciénegas remained due to deliberate draining and unintentional draining through pumping of ground water.

In 1937, C.C. Wheeler wrote this account depicting earlier times of "swamplands" along the Gila River -

> "Many Lagoons or slews were located along the Santa Cruz, two very large ones at Calabasas formed by the overflow of the Sonoita Creek and Santa Cruz, with others along the stream. The condition at Calabasas on account of this swampy land malaria was very bad and settlers suffered greatly with Chills and Fever and many were obliged to move away from that section." *

The following old song was written by an unknown author (sung to the tune of Old Dan Tucker.)

The people here in Arizony
All look very pale and bony.
They shake and ache and burn and shiver
Up and Down the Gila River.
I'm freezing in the heat of day,
I feel like winter's here to stay.
I'm too cool for the month of June,
So bring me quinine with a spoon. *

* Barbara Tellman. *Arizona's Changing Rivers: How People Affected The Rivers*, Water Resources Research Center, College of Agriculture, The University of Arizona, March, 1997.

1. Choose one of the following ciénegas to research: Bingham, Empire, or Canelo Hills. Next, do some research to collect information about the ciénega you have chosen. Use the internet, library resources, or contact natural resource agencies or conservation organizations to answer the following questions:
   a. Where is the ciénega located?
   b. For what or whom is it named?
   c. How has the ciénega been modified by people?
   c. What was/is the importance of the ciénega to people and wildlife?
   e. Are measures being taken to preserve the ciénega?

2. In C.C. Wheeler's account he mentioned Calabasas. Where is Calabasas, Arizona? What other information can you find out about this city?

3. In the song above: Why do you think the author wrote "they shake and ache and burn and shiver?" What was the purpose of quinine?

4. The Monkey Springs pupfish once lived in Arizona springs. Historically, where was it found in Arizona? What happened to it?

5. Prior to 1800, thousands of beavers lived along the San Pedro River. What ecological benefits did beavers provide for wildlife? Use the internet and other resources to look for information about the importance of beavers to early settlers in Arizona. What are some problems beavers can cause for people?

7. "Ciénega" comes from a Spanish word. List some other Spanish words related to water. (Check an AZ map).

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